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MINIMALLY INVASIVE SACRAL NEUROMODULATION IMPLANT: RESULTS FROM A NATIONAL REGISTER ON 98 IMPLANTED PATIENTS

Aims of Study

Aim of this report is to present the national experience on percutaneous implant of sacral neuromodulation lead.

Methods

The traditional procedure for sacral nerve stimulation involved the use of a percutaneous test stimulation prior to implantation of a chronic system. The implant occurred after obtaining positive results, and the procedure was typically performed as a single-stage implant. The test stimulation sometimes resulted in inconclusive results, because test leads would migrate.

From December '99 98 consecutive patients (68 female, 30 male, mean age 48, range 19-64), underwent percutaneous implant of permanent lead for sacral neuromodulation. Thirty-nine skipping the PNE phase. The procedure was performed in local anaesthesia in 85 pts (87%). Indications for sacral neuromodulation were: urge incontinence 41 pts (neurogenic 12 pts), retention in 37 pts (neurogenic 12 pts), urgency/frequency (6 pts), fecal incontinence (7 pts), pelvic pain (4 pts) and chronic constipation (3 pts).

The average time necessary to complete the procedure was 45 minute (range 25-90).

The foramen needle is inserted into the foramen to a desired location (S3 usually), then the technique consist of using two dilator successively inserted over a metal stylet inserted through the needle, the lead is inserted through the plastic dilator. To verify the stimulation lead's position, an electrical signal is applied to the lead to evoke a patient motor or sensory response. The position and depth of the lead is adjusted to obtain the best sensory and motor response.

Results

Fifty-three pts underwent second stage (implant of IPG), 13 that report an improvement lower than 50% were not selected for IPG implant and 30 pts are currently in screening phase. The mean follow-up after IPG implant is 10 months (1-22), 38 experienced an improvement by more than 90% and 1 have an improvement within 50%-90% while in 1 patient the system has been explanted.

The overall displacement is 8% excluding the 4 pts in whom no fixation method were used, the displacement rate dropped to 4%. The group of patients that was not screened with PNE report a success rate (improvement by more 50% during screening with quadripolar lead) of 75%. The success rate during screening phase in group of patients screened either with PNE is 71%.

Conclusions

Sacral neuromodulation continues to evolve. The development of minimally invasive implant methods is of great interest to physicians who use sacral neuromodulation in treating their patients. Our experience showed that the staged, percutaneous approach with local anesthesia is feasible, is quicker than the traditional implant and may reduce adverse events associated with the surgical procedure required to implant the lead. The use of local anesthesia lets the implanting physician use the patient's conscious sensory response to stimuli as an aid in accurately placing the stimulation lead. The displacement rate is low and lower than reported with surgical implant. The success rate of patients underwent a PNE with positive results is slightly lower than the success rate of patients screened with quadripolar lead. This could show the relative low value of PNE as predictive factor, this could be explained with inconsistent position of the PNE lead and the early displacement of PNE lead.